Warehouse Reconfiguration

Ben Kuker
Technology Education
Mount Vernon HS
American Profol

Part I: Overview of Business

American Profol is located in Cedar Rapids. They produce cast film, (rolls of plastic). The Cedar Rapids location is the only production facility in North America. The business has two more facilities located across the globe. One facility is located in China and the corporate headquarters and another production facility are in Germany. The Cedar Rapids facility began operation in 1992. The cast film produced is utilized in numerous products. For instance, one of their biggest customers uses Profol's products to manufacture 3 ring binders. Profol's business anchors their beliefs on three primary cornerstones: Quality, Innovation, and Value.

Part II: Job Specifics

Goods are stored and received in the warehouse facility. Finished products are placed in lanes on the floor according to their order number. Production supplies are located throughout the facility. Some are on the floor, others are tucked into flow through storage racks, and the rest are stacked onto racks up against the walls. Pallets and packaging materials are also stocked away in the warehouse. Scrap material also is stored away in the warehouse, waiting for pickup.
Production and maintenance members need to know where products are located. Warehouse team members are responsible for receiving and placing the supplies and storing them in a systematic order.

Part III: Introduce the Problem

For an operation to run smoothly it needs to be efficient and organized. The warehouse at American Profol can hold a significant amount of received goods and outgoing products. The problem is the organization fits the current working model. Which means, the current system works but there are definite areas of improvement. By rearranging the area used for storing goods the business hopes to improve and maximize the storage capacity. Also the business hopes to enhance and refine the areas where goods are stored. For instance, can pallets be stacked on top of each other or should they be placed in the flow through racking system? Students you are responsible for identifying areas of improvement in the warehouse at American Profol. After identifying the source(s) of the problem I want you to develop a solution and create a model of the solution with 3D modeling software.

Part IV: Background

I hope to arrange a class visit to American Profol. I intend to split the class into pairs and have each set sketch out and measure a portion of the warehouse facility. They will take this information back to the classroom and create a 3D model utilizing CAD software. If each pair makes a portion then the entire class could assemble the segments into a whole representation of the warehouse. Essentially, the students will be making pieces of a puzzle. After they have made the pieces I'm hoping that they can arrange, or even rearrange, components of the facility. Again, the overall objective of the activity is to find ways or methods to improve storage capacity, efficiency, and organization. As I introduce the activity I will share with them pictures of the current warehouse and explain the some terminology. I will also share how certain products can be stacked on top of each other.

Part V: Business Solution

American Profol is gathering information and hopes to determine a solution in the near future. Ideally, they would like to utilize the flow through racking system for finished products. The materials needed for producing the cast film can be stacked on top of each other. Switching the location of production products and finished materials may open up more floor space. This attempt may increase the efficiency and organization of the warehouse.

Part VI: Student Solutions

I think the students will create models of segments of the warehouse and then piece them together into an assembly. This will allow them to manipulate the configuration of the warehouse. Ideally, their solutions would increase the storage capacity of the facility and improve the organization and efficiency of the current system.